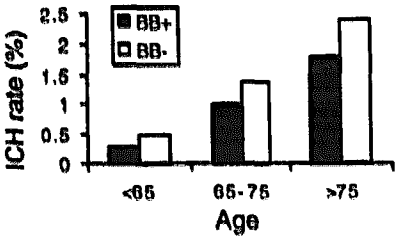
Methods: We reviewed data from 60,329 patients with AMI who were treated with t-PA and were enrolled in the National Registry of Myocardial Infarction 2.

Results: Of the total cohort, 23,749 (39.4%) patients were treated with immediate beta-blocker therapy and 542 (0.9%) patients developed an ICH. In a multivariate model which included all covariates known to be associated with the development of an ICH, immediate beta-blocker therapy was associated with a 31% reduction in ICH rate (OR = 0.69, 95% CI 0.57–0.84). This effect was independent of age.



Conclusions: The use of immediate beta-blocker therapy in patients with AMI treated with t-PA was associated with a significant reduction in ICH. This finding serves to reinforce the recommendations made by the ACC/AHA task force that immediate beta-blocker therapy should be administered to all patients with AMI who do not have contraindications.

11:30

885-5 Does Enrollment Into Acute Myocardial Infarction Investigational Protocols Delay Time to Thrombolytic Therapy?

G.R. McKendall, S.E. Reinert, M.J. McDonald, R. Woolard, D.O. Williams. *Rhode Island Hospital, Providence, RI; Brown University, Providence, RI, USA*

Time to treatment with thrombolytic therapy (TT) influences outcome for patients (pts) with acute myocardial infarction (AMI). Although investigational protocols (IP) for AMI may ultimately identify superior thrombolytic treatments, it is possible that IP contribute to TT delays. We determined the influence of IP enrollment on AMI diagnosis and treatment by reviewing 957 AMI patients who were treated with TT. Pts were enrolled into five sequential IP's between 1989 and 1997. Time to EKG (Dx time) and TT (TT time) were measured (minutes ± sd) for each enrolled pt and compared to pts not entered into an IP (controls) during the same time period.

	n	Dx Time	P	TT Time	P
IP 1	45	17 ± 14	0.942	64 ± 33	0.660
Control 1	156	18 ± 12		68 ± 58	
IP 2	55	13 ± 7	0.331	62 ± 32	0.160
Control 2	210	14 ± 9		53 ± 40	
IP 3	165	16 ± 16	0.419	39 ± 24	0.001
Control 3	187	16 ± 15		52 ± 40	
IP 4	12	20 ± 35	0.464	65 ± 5	0.428
Control	59	15 ± 14		53 ± 40	
IP 5	21	12 ± 10	0.171	40 ± 15	0.411
Control	47	21 ± 29		53 ± 70	

We conclude that enrolling AMI pts into IP for TT does not significantly delay, and for some IP may shorten, time to TT. This suggests that delays to TT may be reduced by the application of rigorous protocols for AMI pts.

11:45

885-6 Impact of Left and Right Bundle Branch Block on In-hospital Mortality in Acute Myocardial Infarction

A.S. Go, H.V. Barron, A.C. Rundle, J.P. Ornato, A.L. Avins. *For the National Registry for Myocardial Infarction 2 Investigators; University of California, San Francisco, San Francisco, CA, USA*

Background: While left bundle branch block (LBBB) is considered an important predictor of poor outcome in acute myocardial infarction (AMI), the impact of right bundle branch block (RBBB) is not well understood

Methods: We studied the clinical features, treatments received, and in-hospital mortality of 297,832 AMI patients from the National Registry for Myocardial Infarction 2 (June 1, 1994–April 30, 1997) who presented with either LBBB [n = 19,967], RBBB [n = 18,354], or no bundle branch block (NBBB) [n = 259,511]. Multivariate logistic regression was used to evaluate the independent effect of bundle branch block on in-hospital mortality.

Results: LBBB and RBBB patients received less thrombolytic therapy compared to NBBB patients (5%, 13%, 22%, p < 0.001) as well as less aspirin (61%, 67%, 76%, p < 0.001). Among those who received thrombolytics, LBBB and RBBB patients had greater delays in median time to treatment (65 min, 50 min, 43 min, p < 0.001) compared to NBBB patients. Unadjusted in-hospital mortality was almost twice as high for LBBB and RBBB patients compared to NBBB patients (23%, 23%, 13%, p < 0.001). After adjusting for differences in co-morbidities and MI severity, LBBB was associated with only a slight increase (Odds Ratio 1.07 [95% Confidence Interval 1.01–1.13]) while RBBB (1.64 [1.58–1.72]) was associated with a 64% increase in the odds of in-hospital mortality compared to NBBB patients. After additionally adjusting for differences in immediate revascularization and aspirin use, RBBB (1.65 [1.58–1.73]) was a much stronger predictor of in-hospital mortality than LBBB (1.10 [1.04–1.17]).

Conclusions: RBBB is a more important independent risk factor than LBBB for in-hospital mortality in AMI, after adjusting for differences in baseline co-morbidities, MI severity, and treatments received.

886 Influence of Shock Wave Form on Defibrillation Efficacy

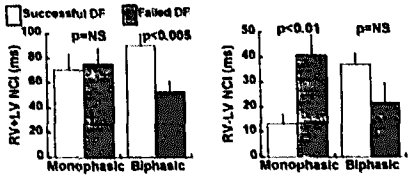
Wednesday, April 1, 1998, 10:30 a.m.–Noon
Georgia World Congress Center, Room 254W

10:30

886-1 Effect of Coupling Interval in Failed Defibrillation With Long Postshock Responses Using Monophasic and Biphasic Shocks

O.H. Tovar, J.L. Jones. *Georgetown University and Department of Veterans Affairs Medical Center, Washington D.C., USA*

Successful defibrillation has been associated with the extension of refractoriness, however shocks producing a long postshock response duration (RD) can fail to defibrillate. In this paired study we examined the effect of shock coupling interval (CI) in determining success or failure of defibrillation with long postshock RD. Ventricular fibrillation (VF) was induced in 11 isolated rabbit hearts. After 10 seconds VF, defibrillation (DF) shocks were delivered through 2 patch electrodes with either a 12 ms monophasic (M) 65% tilt, (n = 66) or 12 ms (6/6) biphasic shock (B) 65% tilt, (n = 66), interposed in random order. Seven shock intensities (0.8–3.6 A) were tested. VF and DF were recorded using two epicardial MAP electrodes placed in low potential gradient regions of the right (RV) and left ventricle (LV). Immediate successful DF (type A) occurred only when long RV and LV RD were produced by the shock for both M (n = 9) and B (n = 30). However, some failed DF episodes were present with similar long RD induced by M and B. With B but not M, RV + LV CI was significantly longer for successful DF than for failed DF (p < 0.005). With M but not B, RV-LV CI was significantly smaller for successful DF than for failed DF (p < 0.01).



These results suggest that long RD fail to defibrillate if: a) the CI was short in both ventricles using B, b) the CI dispersion was large between both ventricles using M. These conclusions further suggest that shock timing might be an important factor in improving DF efficacy and that the timing effect may be waveform dependent.

10:45

886-2 Influence of Phase Duration of Biphasic and Triphasic Shocks on Defibrillation Thresholds Using "Active Can" Systems

C. Stellbrink, P. Schauerte, K. Ziegert, M. Grossmann, F. Schöndube. *RWTH Aachen, Germany*

Background: Although less post-shock arrhythmias have been reported for triphasic shocks this did not result in lower DFTs as compared to biphasic shocks of equal duration (D). Optimal shock D may differ for biphasic or triphasic shocks.

Methods: We compared the shock strength-duration curves of biphasic (phase-1 D = phase-2 D) and triphasic shocks (phase-1 and phase-3 = $\frac{1}{4}$ total D each and phase 2 = $\frac{1}{2}$ total duration) delivered by a 150 μF capacitor in 6 pigs. An "active can" system and 7 different shock Ds were applied. The DFT was determined by a step up-down protocol with a final step size of 20 V.